Joseph Lapka/R9/USEPA/US
08/07/2006 09:14 AM

To cabrilloportpermit@epa.gov
cc
bcc
Subject Fw: Comment Letter-Cabrillo Port

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----- Forwarded by Joseph Lapka/R9/USEPA/US on 08/07/2006 09:14 AM -----

"Wood, Thomas" <TRWOOD@stoel.com>

08/03/2006 06:11 PM

To Joseph Lapka/R9/USEPA/US@EPA, Margaret Alkon/R9/USEPA/US@EPA
cc "Abel, Rick" <Rick.Abel@bhpbilliton.com>
Subject Comment Letter-Cabrillo Port

Joe/Margaret: Here are BHP's comments on the draft permit. They were also mailed/postmarked today, but I thought you might want a copy immediately.

As always happens, a good thought occurred right after these comments were sent. In relation to our comment on V.E.3, the best substitute for BOG is "natural gas burned as fuel" rather than just "natural gas" as we suggested in the letter.

Let me know if you have any questions.

Tom

Thomas R. Wood
Stoel Rives LLP

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"Abel, Rick"
<Rick.Abel@bhpbilliton.com>
08/03/2006 05:46 PM

To cabrilloportpermit@EPA
cc "Wood, Thomas" <TRWOOD@stoel.com>
bcc
Subject Comment Letter on Cabrillo Port EPA Draft Authority to Construct

Attached is a copy of our letter of comments on the subject EPA Draft Authority to Construct. In addition, an original copy is being sent via regular US mail today.

Regards,

Rick Abel

Project Development Manager

BHP Billiton LNG International, Inc.

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August 3, 2006

Mr. Joe Lapka
AIR-3
United States Environmental Protect Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105

Re: BHP Billiton LNG International Inc.
Cabrillo Port
Comments on Draft Authority to Construct

Dear Joe:

Thank you for the opportunity to review the draft Authority to Construct for BHP Billiton LNG International Inc.'s ("BHP") Cabrillo Port project (the "Project"). BHP appreciates all of the hard work that EPA has put into understanding the Cabrillo Port facility and developing the draft Authority to Construct ("ATC" or "permit"). On the whole, the permit adequately reflects the project, although there are a few places where we believe that changes are appropriate. Therefore, we have prepared the following comments. We have organized our comments according to the order of the permit and not order of importance.

I. Project Description

At the public hearing there appeared to be some confusion regarding the project description in the draft ATC as compared to the project description in the Draft Environmental Impact Report ("DEIR"). The commenter stated that the ATC project description described only a single subsea pipeline and inaccurately suggested that the Ormond Beach Metering Station was not in existence. We have reviewed the project description and see no suggestion that there was only one pipeline planned. As for the metering station, we believe the commenter confused the distinction between the existing Ormond Beach Metering Station that serves the Reliant Energy plant and the metering station that BHP will construct for this project. Gas leaving the FSRU will travel through two parallel subsea pipelines that will come ashore at the location of the Reliant Energy Ormond Beach metering station. The Reliant Energy metering station measures the amount of gas being accepted by the Reliant plant from the SoCalGas system. The BHP Ormond Beach metering station will measure the amount of gas being accepted by SoCalGas from BHP. SoCalGas is proposing to build a 14.7-mile pipeline from the BHP Ormond Beach metering station to the Center Road Valve Station where another metering station will be added.

The project description states in the first paragraph that there will be three primary generator engines and one backup. As we have discussed, there is no designated backup engine. There are four engines of which only three will be used at any one time. We believe that indicating there is

one backup misleads people into believing that one engine is specifically designated as the backup unit. We suggest this be revised to read that there will be four engines of which only three will be used at any one time.

In the third paragraph you identify the generator engines as Wartsila 9L50DF engines. While those are the engines that BHP is currently considering, we believe that it is appropriate to leave BHP the latitude to utilize equivalent engines from a competing manufacturer if such engines come on the market. Therefore, we suggest that this identifier be revised to read "Wartsila 9L50DF (or equivalent) engines."

In the third paragraph the project description also states that there will be "one LNG carrier." While we understand from the Statement of Basis that the intent of this description was to clarify that only one LNG carrier is within Federal waters at any one time, we believe that this wording suggests that there is literally only one LNG carrier associated with the Project. In fact, there will be multiple LNG carriers in various stages of the round trip to and from the liquefaction plant. We suggest that the last sentence of the third paragraph be revised as follows:

> "Specifically, the mobile source marine vessels associated with operation of the FSRU will include ~~one~~ LNG carriers, two tug/supply boats, and one crew boat. Only one LNG carrier will dock at the FSRU at a time."

The project description states that the crew boat will conduct approximately 3.5 round trips per week between the shore and the FSRU. In response to comments regarding facility security, BHP has agreed as a mitigation measure to utilize the crew boat to patrol the FSRU safety zone while the two tugs are engaged in docking an LNG carrier. As a result, the crew boat will now be required to make five round trips per week between the FSRU and Port Hueneme.

In addition, in order to address questions raised by the Coast Guard, BHP believes that it must consider operating the crew boats and tugs exclusively on diesel. BHP is aware of LNG being used to provide natural gas on at least one other vessel developed by a shipping company in Norway. BHP and the equipment vendors believe that LNG can also be used as a safe means of providing natural gas for combusting in the crew boat and tug engines. However, the Coast Guard has suggested that additional information must be provided before the supply vessels can be authorized to carry LNG in their fuel tanks. BHP is in continuing dialog with the Coast Guard and others as to whether it will be allowed to use this inherently low emitting technology. However, because the outcome of these discussions is uncertain, we request that the permit allow the support vessels to utilize either natural gas or diesel as fuel, subject to the requirement that if diesel is used that SCR and an oxidation catalyst be required for the two tugs. Given the size of the vessel, these controls may not be not feasible for the crew boat. The use of Tier 2 diesel engines combined with NOx, ROC and CO emission controls will result in overall emissions (District and Federal waters) being equivalent between the two fuels. BHP believes that so long as the emission rates are equivalent, the permit should be fuel neutral.

The increased use of the crew boats and the change to having the alternative of using diesel fuel as fuel for the tugs and crew boats will result in a small increase in emissions in District waters. The increased use of the tugs was reflected in the modeling submitted to EPA by letter dated July 6, 2006. The minimal changes in emission rates attributable to the use of diesel in the service vessels are not expected to affect the modeling or the conclusion that Cabrillo Port will not cause or contribute to an exceedance of any ambient air quality standard or increment.

The fifth (last) paragraph of the project description discusses the proposed mitigation projects. We believe that this information should be updated to reflect that currently the tug owners are not sure that they will replace the auxiliary engines. As a result, the mitigation project reports under review by CARB and EPA reflect only the propulsion engines. Therefore, we suggest that the paragraph be revised to clarify that BHP will fund the replacement of two propulsion engines per vessel and to remove the reference to the auxiliary engines.

II. Equipment List

The equipment list in Section II of the permit identifies eight submerged combustion vaporizers ("SCVs") rated at 155 MMBtu/hr each. The SCVs are actually rated at 115 MMBtu/hr, not 155 MMBtu/hr. Also, in relation to both the SCVs and the generator engines, we request that "(or equivalent)" be added after the particular make/model. It is highly likely that these manufacturers and models will be used, but if there is another party manufacturing an equivalent unit BHP should be able to use that as an alternative.

We also note that Table 1.3-1 of the December 2005 application identifies three freefall lifeboats as emission sources. Those lifeboat engines are not identified in the equipment list in section II of the draft ATC.

III. Facility Location

No comments.

IV. Definitions

Initial Startup The definition of initial startup is "The moment at which the first piece of permitted equipment on the FSRU is set in operation for the first time." We believe that this definition needs to be revised to reflect the manner in which the FSRU will be commissioned. The FSRU will be built somewhere overseas, as no domestic drydock is large enough to handle the vessel size. Once the facility is constructed, it will be floated and, while still close to the fabricators facilities, loaded with a small amount of LNG and all systems tested. The benefits of testing the facility while it is close to the manufacturer's facilities are self-evident. Upon satisfactory completion of testing, the FSRU will likely be emptied of LNG and will then be

transported to the project location and permanently moored. BHP has not determined whether the generator engines on the FSRU will be operating at low levels on diesel while in transit or whether the generator engines will be started up on delivery to the site location. Once in place, the FSRU will operate the generator engines on diesel until the first shipment of LNG is made. The "initial startup period" is intended to cover the operation of the generator engines on diesel until the time that natural gas is available for use in the generator engines. By defining "initial startup" as the moment when the first piece of permitted equipment on the FSRU is set in operation for the first time, EPA arguably defines initial startup as an event that is occurring halfway across the world. We do not believe that this was intended. We recommend that the definition be revised to read: "The moment at which the first piece of permitted equipment on the FSRU is set in operation for the first time after the FSRU enters Federal waters."

Initial Startup Period The draft ATC defines the initial startup period as not exceeding 60 days. The calculations and intent were that this was 60 days of actual equipment operating time and not a calendar day limitation. We request that the definition be revised to specify "60 operating days."

V. Emission and Operational Limits

As a general comment, it appears that the draft ATC does not incorporate all of the revised emissions data that was supplied as part of BHP's April 7, 2006 letter. That letter included revised emission specifications from Wartsila and a response to SCAQMD comments and so is particularly relevant to the emission limits. Given the close proximity of that letter to the date the draft ATC was placed on public notice, it is not surprising that all of this information did not make it into the draft. However, we want to ensure that the most accurate information is reflected in the permit. In addition, it appears that there may be some confusion as to the hourly emission rates for the individual units as opposed to the aggregate units. For example, the table under V.A.1 indicates that the NOx limit is 11.17 lbs/hr per SCV. In fact, the SCVs will emit 2.79 lbs/hr of NOx and the equivalent of four SCVs operating at full load would emit 11.17 lbs/hr. In order to clarify this point, we are submitting the following tables.

Emission Unit /ID No.	**Emittent PPMV**		
	NO_x	**CO**	**ROC**
SCVs (D1 through D8) @ 3% O_2	20	100	4.1
Wartsila Generators (D9 through D12) NG-Fueled @ 15% O_2	7.51	21	43.2
Wartsila Generators (D9 through D12) Diesel-Fueled @ 15% O_2	150	25	60

Emission Unit / ID No.	Pollutants (lbs/hr)				
	NO_x	CO	ROC	SO_2	PM_{10}
SCVs (D1 through D8) 7.5 Units @ 100 % Load	20.94	63.74	1.49	0.14	1.63
SCVs (D1 through D8) 4 Units @ 100 % Load	11.17	34.0	0.8	0.08	0.87
SCVs (D1 through D8) One Unit @ 100 % Load	2.79	8.5	0.2	0.02	0.22
Wartsila Generators (D9 through D12) NG-Fueled 3 Units @100 % Load	5.46	9.28	10.91	0.03	3.61
Wartsila Generators (D9 through D12) NG-Fueled One Unit @100 % Load	1.82	3.09	3.64	0.01	1.20
Wartsila Generators (D9 through D12) Diesel-One Unit @ 100% Load	38.68	3.92	5.38	0.10	2.80

Condition V.E.3

Condition V.E.3 proposes to limit the total flow rate of boil-off gas ("BOG") to the SCVs to a maximum of 456.53 Mcf/hr. We have several comments in relation to this condition. First, there is a misconception about the use of boil-off gas in the SCVs and other equipment. The FSRU tanks are designed for a nominal boil-off rate of 0.12% per day, which will generate approximately 7 MMscf per day of natural gas. However, at the annual average export rate, the SCV's will need about 11.2 MMscf of gas per day and the 3 generator engines need about 4.34 MMscf per day. So the boil-off gas will make up less than half of the total daily fuel requirement at average export rates for normal non-loading operation. When an LNG carrier is being off-loaded there will be a lot more boil-off gas and it should provide all of the fuel requirements. However, as off-loading operations occur during a minority of the hours each week, there will be a significant amount of time when the fuel being burned in the SCVs and/or generator engines is not boil-off gas, but, rather, gas that has been gasified in the SCVs. Therefore, the references to BOG that are scattered throughout the ATC and Statement of Basis should all be changed to "natural gas."

Closely related to this concern are two other issues arising from the proposed limit on the flow of BOG to the SCVs. First, the limit is stated as 456.63 mcf/hr. We believe that this value was calculated assuming a BOG HHV of 1007.6 Btu/scf. However, in computing the fuel flow one cannot utilize this heating value. As noted above, the percent of gas burned in the SCVs, which is boil-off gas, will range from slightly under 50 percent to 100 percent. When the gas boils off, not all components of the gas stream boil off proportionately. For example nitrogen boils off faster than methane and so the boil-off gas will have a higher nitrogen content, and therefore

lower HHV than the LNG in the tanks or the gas that is gasified through the SCVs. This is the reason why Selas (the SCV manufacturer) used a HHV of 990 Btu/scf in the data sheet included in the application. As a result, we believe that it is inherently inaccurate to track SCV operation based on gas flow. We believe that it is much more accurate in light of the variation in the amount of boil-off gas being used to monitor the SCVs based on heat input. For this reason we believe that condition VI.D.1.g should be revised to require monitoring of hourly heat input for D1 through D12 rather than hourly gas flow.

An additional concern raised by this condition is that the maximum utilization of four SCVs (or the equivalent of four SCVs) is based on annual average operations. BHP intends to typically operate the equivalent of four SCVs; SoCalGas has stated an intent to receive natural gas deliveries from Cabrillo Port on uniform hourly and daily flow rates. However, BHP anticipates that there will be times when demand is critical and the gas company will want higher short-term flows. This means that under unusual circumstances for up to 6 hours per day the FSRU could be exporting as much as 62.5 MMscf/hr. If there was extraordinary demand or SoCalGas had problems receiving gas from another source Cabrillo Port could on occasion be called upon to export as much as 1.2 Bscf/day. Daily export on an annual average basis will be approximately 800 MMscf/day (the export capacity of four SCVs). However, the Project cannot operate with an hourly limit that constrains the facility to four SCV equivalents at all times. Therefore, we suggest that the draft ATC be revised to include the following limits which are based on operating at export rates of 62.5 MMscf/hr (7.5 SCVs), 50.0 MMscf/hr (6 SCVs) and 33.3 MMscf/hr (4 SCVs), respectively:

Maximum hourly heat input rate to SCVs (HHV): 863 MMBtu/hr
Maximum hourly heat input rate to SCVs (HHV): 690 MMBtu/hr (24-hour average)
Maximum hourly heat input rate to SCVs (HHV): 460 MMBtu/hr (annual average)

We submitted by letter dated July 6, 2006, revised emissions spreadsheets that document these short-term variations.

Condition V.E.4

This condition limits BHP to operating only three of the generator engines at any one time. BHP does not believe that this limit is necessary or appropriate. The Project should be allowed to operate all four units at a reduced load (less than or equal to load from three units operating at full load) if it is appropriate to do so and compliance is maintained at all times with the emission limits in the permit. This is most likely to occur for short periods as the facility starts up one engine as it ramps down another engine in anticipation of taking it off line.

As noted above, BHP believes that it is appropriate to monitor heat input rather than just gas flow in order to monitor SCV operations. Likewise, we believe that it is best to limit the generator engine operations to a total heat input equivalent to three engines operating at full load.

Specifically, we believe that condition V.E.4 should limit the generator engines to a maximum hourly heat input equivalent to the operation of three units at full load, i.e., 197.08 MMBtu/hr (HHV).

Conditions V.E.6.d and V.E.7

Conditions V.E.6.d (second sentence) and V.E.7 limit the hours of operation of the generator engines exclusively on diesel and the amount of diesel burned for backup purposes, respectively. We believe that the second sentence of V.E.6.d should be deleted. The calculations for purposes of computing backup emissions were based on an amount of fuel burned and not the number of hours. Therefore, there is no reason to have the hours limit for the primary generators operating on exclusively diesel. The draft ATC is written to monitor diesel usage and this is the best means of tracking compliance. Therefore, we recommend that the hours limit be deleted.

VI. Monitoring, Performance Testing, and Recordkeeping Requirements

Condition VI.B.5.b

Condition VI.B.5.b requires that BHP measure and record the kW-hrs produced by D13 through D16. However, three of these units are firewater pump engines and kW-hr cannot be measured for these units. The emergency generator is limited to 50 hours of operation per year by condition V.E.9 and the expense of a kW-hr meter is not justified. This is particularly true where the operation/production data can be determined from the hours and fuel use records required elsewhere in the draft ATC. Therefore, we suggest that this requirement be eliminated.

Condition VI.C.1.a

Condition VI.C.1.a.i requires that BHP conduct a performance test for the emergency generator within 120 days after the end of the startup period. This testing requirement is unreasonable for a Tier 2 engine that will be operated less than 50 hours per year and that has minimal emissions. Therefore, we request that this testing requirement be eliminated.

Condition VI.C.1.a.ii requires that BHP conduct a performance test for the generator engines on diesel for any engine that utilizes diesel during the startup period. We request that EPA delete this requirement. The generator engines will operate exclusively on diesel, if at all, only for a short time during the startup period. BHP has every economic incentive to minimize the startup period and, therefore, the usage of diesel in the generator engines. Requiring testing would mean that BHP would have to operate the engines for a number of additional hours after the startup period exclusively on diesel just for purposes of the test. We do not believe that this is reasonable or good environmental policy. Therefore, we request that this condition be eliminated.

Condition VI.C.1.b

Condition VI.C.1.b.i requires periodic performance testing for the SCVs and the generator engines. BHP does not disagree with the need for periodic performance testing of the units. However, it does not seem reasonable to have to test all eight SCVs and all four-generator engines in each testing cycle. Instead, we request that EPA specify that a different two SCVs and a different generator engine be tested each testing cycle. These data will provide adequate information to confirm the ongoing compliance of these units without imposing an unduly onerous testing burden.

Condition VI.D.1.g

As noted above, we believe that this condition should be changed so that heat input is being monitored rather than gas flow. By monitoring the heat input of the gas and hourly gas flow the hourly heat input can be determined. This will provide a more accurate means of tracking relative operation of the SCVs and ICEs.

Please do not hesitate to contact me if you have any questions about these comments.

Sincerely,

RAbel for

Renee Klimczak

cc: Rick Abel
Tom Wood
Tom Umenhofer